

# Livelihood Options for Marginalized Farmers: The Multi Level analyses in Drought Prone Agro-ecosystem

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**Abstract**—Poverty is worldwide problem, it exist both in developed and developing countries. It attacks a person not only materially but also morally. The objective of the study was to conduct the analysis of poverty through sustainable livelihood framework and the subject aspects of poverty was understood through participation of the poor people in formulating livelihood strategies in the studied zone, which they adopt to achieve their livelihood outcomes. The present study was conducted in tropical scarce drought-prone areas of West Bengal, representing pro poor situations, even downtrodden farm communities of the areas. Purposive as well as simple random sampling techniques were adopted for the study. Out of total 105 respondents in the village 100 responses were obtained after three visits. Both formal and informal survey techniques were followed in the study. Participatory well being ranking was applied for generating well being categories for discrimination of respondents. Structure schedule was resorted to assess the 29 assets variables for individual members within the categories and inter categories. For exploring the livelihood outcomes of the respondents oral narrative techniques was resorted to and it was later quantified through content analysis techniques. Various statistical techniques such as frequency, percentage, SD, co-efficient of variation, Chi-square test, students 't' test analysis of variance spearman's rank correlation were used. After analysis of the data the understanding that has been emerged out from the study that there exist significance difference within the well being groups under poor household in respect of livelihood assets, vulnerability context, structure and process that governed them and finally in the perception of well being. But interestingly enough the issue of generalization of poverty classes at the time of intervening poverty with reduction strategies are one of the bottlenecks as internalized by the researcher. This variance should be reflected in the planning pro-poor development strategies unless the efforts will rather miss the target to great extent. Policy maker should pay attention to this relatively unfold fallacies poverty reduction at this juncture rather it is too late. From the study, it may be concluded that it is the imperative part to know the basic information pertaining the required data of any zones prior to implement any of the improvised agro-techniques on it.

**Keyword:** Poverty, livelihood, agro-ecosystem, Self-help groups, DPAP, Vulnerability, seasonability.

## 1. INTRODUCTION

Poverty is a worldwide problem: it exists both in developed and developing countries. It attacks a person not only materially but also morally. The incidence of poverty is highly uneven among the regions of the world, among the countries within those regions, among localities of the countries. Indian still has the world's largest number of poor people in the single country. Of its nearly 1.1 billion inhabitants, an estimated 350 to 400 million people live on less than \$ 1 a day, and nearly 750 to 800 million people live on less than \$ 2 a day. As almost three of every four Indians live in rural areas, nearly 75 percent of the total Indian poor live in rural areas. This country has the greatest concentration of landless rural households (approximately 60 million). Landless and rural poverty is very closely related. Rural women in India are more oppressed. Females are more to die as infants and children than that of men. More than six of ten women in India are illiterate, almost double the male rate. And, most significantly, Indian women rarely have legal rights to land, despite the fact that they are often engaged in agriculture than men. In rural sector of India, agriculture growth has been historically a major force behind poverty reduction, but now potentiality in reducing poverty is hotly debated. In this context the question may arise "can Indian rural people ever overcome their huge poverty problem?" "What will be the fate of the rural poor?" and this is the very point to rethink about rural poverty. After decades of limited success in eliminating rural poverty, new ideas about rural development are emerging. A number of prominent agencies are currently revising their rural development strategies in broadly similar direction.

'Livelihood approaches' work with people, supporting them to build upon their own strengths and realize their potential, while at the same time acknowledging the effects of policies and instructions, external shocks and trends. The aim is to do away with pre-conceptions about what exactly rural people are seeking and how they are most likely to achieve their goals, and to develop an accurate dynamic picture of them in their environment. This provides the basis for identifying the constraints to livelihood development and poverty reduction. Such constraints can lie at local level or in the broader economic and policy environment. They may relate to the agricultural sector – long the focus of donor activity in rural areas-or they may be more to do with social

conditions, health, education or rural infrastructure. The sustainable livelihood approach provides a way to improve the identification, appraisal, implementation and evaluation of development programmes so that they better address the priorities of the poor people, both directly and at a policy level. In this way it represents one means of pursuing poverty elimination aim. It can be used in both planning new development activities and assessing the contribution to livelihood sustainability made by the existing activities.

In this context, in the analysis of poverty through sustainable livelihoods framework the subject aspect of poverty should be highlighted through participation of the poor people in constructing livelihood strategies; which they adopt to achieve their objectives and livelihood outcomes; which they are seeking. Participatory methods are more helpful in unleashing the location specific social, political and institutional criteria behind poverty. Poor people experience of the day to day poverty should be discussed in an open-ended manner. Through the inclusion of social factors and perspective of poor multi dimensional aspect of the poverty can only be understood in a complete sense. Poverty reduction can be seen not as intervention but also a holistic strategy to reaching desirable livelihood outcome. It also should address the livelihood assets, vulnerability context, structures and process variability at a common platform fulfilling their expectations for better wellbeing. With this backdrop the present study is to conduct the analyze poverty through participation of the poor people in formulating livelihood strategies, which they adopt to achieve their livelihood outcomes.

## 2. METHODOLOGY

The study was conducted in Noyadangal village of Birbhum district of West Bengal, representing a district pro-poor situation. Purposive as well as simple random sampling techniques were adopted for the study. For selection of the district and block purposive sampling techniques was adopted as the area was ideal with respect to the problem and convenient to researcher. In case of selection of village simple random sampling technique was taken up and total enumeration technique was followed to select the respondent. Both formal and informal survey techniques were followed. Out of total 105 respondents of the village 100 responses were obtained after three visits. Participatory well being ranking (Grandin, 1988) was applied for generating wellbeing categories for discrimination of respondents. Structure schedule was restored to assess the 29 assets variables for individual members within the categories and inter categories. Respondent were asked to express about shocks and vulnerability context is an open ended format tested by the earliest researches (Biswas, 2007). For exploring the livelihood outcomes of the respondents oral narrative techniques was resorted to and it was later quantified through content analysis technique (Holsti, 1968). Statistical tools like frequency, percentage, standard deviation, co-efficient of variation, chi-square test, student t-test, analysis of variance and spearman's rank correlation were used.

## 3. RESULTS & DISCUSSIONS

Distribution of respondents on different background variables describing their assets has been represented in Table-1. The basic of the scoring and categorization has also been given in different columns.

**Table 1: Description of background information of the respondents of Village Noyadangal**

Variable No	Variable name	Score	Category	Frequency (%)	Statistics
X <sub>1</sub>	Age of principal earner	41-50 (1) 51-60 (2) >60 (3)	41-50 51-60 >60	67 22 11	Range-1-3 Mean-1.44 SD-0.69 CV-0.471
X <sub>2</sub>	Caste	SC(1) Lower Caste (2) Artisan Caste (3) Agril. Caste (4) Prestige Caste (5)	SC Lower Caste Artisan Caste Agril. Caste Prestige Caste	37 7 23 14 19	Range-1-5 Mean-2.71 SD-1.55 CV-2.390
X <sub>3</sub>	Family type	Single (1) Double (2)	Single Double	63 37	Range-1-2 Mean-1.37 SD-0.49 CV-0.235
X <sub>4</sub>	Number of youth in the family	1 2 and more		27 73	Range-1-2 Mean-1.73 SD-0.199 CV-2.390

X <sub>5</sub>	Education	Illiterate (0) Read only (1) Read & Write (2) Primary Level (3) Secondary Level (4) Higher Secondary level (5) Graduation and above (6)	Illiterate Read only Read & Write Primary Level Secondary Level Higher Secondary level Graduation and above	9 14 17 28 16 10 6	Range. 0-6 Mean-2.82 SD-1.62 CV-2.634
X <sub>6</sub>	Occupation status	Labour (1) Caste occupation (2) Business (3) Independent profession (4) Cultivation (5) Service (6)	Labour Caste occupation Business Independent profession Cultivation Service	23 7 16 15 27 12	Range. 1.5 Mean-3.52 SD-1.75 CV-3.060
X <sub>7</sub>	Organizational association	No member (0) One org. member (1) More than one (2) Office holder (3) Wide public member (4)	No member One org. member More than one Office holder Wide public member	12 62 11 8 7	Range. 0-4 Mean-1.36 SD-1.03 CV-1.061
X <sub>8</sub>	Land holding status	No land (0) < 1 acre (1) 1-5 acre (2) 5-10 acre (3)	No land < 1 acre 1-5 acre 5-10 acre	24 46 26 4	Range. 0-3 Mean-1.10 SD-0.81 CV-0.657
X <sub>9</sub>	Cultivation status	Leased out (1) Owned (2)	Leased out Owned	32 68	Range. 0-1 Mean-0.68 SD-0.47 CV-0.220
X <sub>10</sub>	Rice cultivation	No (0) Yes (1)	No Yes	38 62	Range. 0-1 Mean-0.62 SD-0.49 CV-0.238
X <sub>11</sub>	Mustard cultivation	No (0) Yes (1)	No Yes	38 62	Range. 0-1 Mean-0.62 SD-0.49 CV-0.238
X <sub>12</sub>	Sesame cultivation	No (0) Yes (1)	No Yes	49 51	Range. 0-1 Mean-0.51 SD-0.50 CV-0.252
X <sub>13</sub>	Cropping sequence	No (0) Yes (1)	No Yes	72 28	Range. 0-1 Mean-0.28 SD-0.45 CV-0.204
X <sub>14</sub>	Savings	No (0) Yes (1)	No Yes	44 56	Range. 0-1 Mean-0.56 SD-0.50 CV-0.249
X <sub>15</sub>	Valuable tree possession	No (0) Yes (1)	No Yes	45 55	Range. 0-1 Mean-0.55 SD-0.50 CV-0.250
X <sub>15</sub>	Drinking water	Pond (1) Tube well (2) IGP (3)	Pond Tube well IGP	70 30	Range. 1-3 Mean-2.30 SD-0.46 CV-0.212
X <sub>17</sub>	Domestic water	Pond (1) Tube well (2) IGP (3)	Pond Tube well IGP	56 44	Range. 1-4 Mean-3.03 SD-0.12 CV-1.383

X <sub>18</sub>	Livestock type	Cow (4) Goat (3) Poultry (2) Others (1)	Cow Goat Poultry Others	17 16 14 53	Range. 1-4 Mean-3.03 SD-0.12 CV-1.383
X <sub>19</sub>	Health status	Not ill (0) Ill (1)	Not ill Ill	34 66	Range. 0-1 Mean-0.66 SD-0.48 CV-0.227
X <sub>20</sub>	SHG	Not a member (0) Member (1)	Not a member Member	48 52	Range. 0-1 Mean-0.52 SD-0.50 CV-0.252
X <sub>21</sub>	Material possession	Bullock cart (1) Cycle (1) Radio (1) Chair (1) Improved agricultural implements (2)	Bullock cart Cycle Radio Chair Improved agricultural implements	10 31 32 15 5 7	Range. 1-6 Mean-2.95 SD-1.31 CV-1.705
X <sub>22</sub>	Beneficiary of development programme	No (1) Yeas (2)	No Yeas	32 68	Range. 0-1 Mean-0.68 SD-0.47 CV-0.220
X <sub>23</sub>	Political association	No (1) Yeas (2)	No Yeas	28 72	Range. 0-1 Mean-0.72 SD-0.45 CV-0.204
X <sub>24</sub>	Market Access	Kopai (1) Ahmadpur (2) Bolpur (3)	Kopai Ahmadpur Bolpur	32 44 24	Range. 1-3 Mean-1.92 SD-0.75 CV-0.559
X <sub>25</sub>	Market nature	Private company involvement (1) Middleman involvement (2) Individual involvement (3) Exchange within the village (4)	Private company involvement Middleman involvement Individual involvement Exchange within the village	31 45 15 09	Range. 1-4 Mean-2.81 SD-0.71 CV-0.499
X <sub>26</sub>	Income				Range Mean-3894 SD-3369.71 CV-1135491313
X <sub>27</sub>	Consumption				Range- Mean-3080 SD-2138.58 CV-4573535.35
X <sub>28</sub>	Family labour		1 2 3	58 31 11	Range-1-3 Mean-1.53 SD-0.69 CV-0.474
X <sub>29</sub>	Hired labour	5-15 (1) 16-25 (2) >26 (3)	5-15 16-25 >26		Range-1-3 Mean-12.09 SD-7.60 CV-57.780

To a great extent, Table 1 is self explanatory; however; the focus of emphasis within the Table has been shown through bold appearance. The major points emphasized are high proportion of SC in the village population; most of families in village are single family, a considerable proportion of the population having primary level of education, predominance of labour and person engaged in farming activities, a good portion of the households are associated with at least one organization, most of the households having land less than one acre (3 bighas), a large portion of the households are owner cultivators, there is no change in the cropping sequence within 3-4 years, considerable proportion of households are associated with Self Help Groups, a good

portion of households in the village are the beneficiary of different development programmes, high proportion of households having good political participation, households are engaged in individual involvement in marketing their produce.

### Vulnerability

All poor people are vulnerable. Vulnerability relates to defenselessness, insecurity, exposure to hazards or shocks and ability to cope with them. The poor people of the village Noyadangal, under study have identified their vulnerability in terms of seasonality, shocks and their coping strategies, and these are being discussed in this section.

### Shocks and vulnerability:

Sudden shocks or crises can act as triggers causing an individual, households or whole community to become poorer. The poor people in this village identified the shocks generally they have to face and scored them accordingly. These are presented in the Table-2.

**Table 2: Shocks identified by the poor people of village Noyadangal.**

Shocks	Magnitude of effect*
Humane shocks	
1.Illness	5
2.Sudden death of earning members	2
Materialistic shocks	
1.Theft	1
2.Fire in house	1
Environmental shocks	
1.Drought	1
2.Flood	1
Economic shocks	
1.Sudden price fall of profitable crops	2
Livelihood related shocks	
1.Illness or death of the livestock	4
2.Crop loss	4

\*Response recorded against a 5-point scale.

“Illness” is the most important shock to the poor villagers considering its magnitude of impact. The poor people of the village assigned highest score to this attribute. It is followed by ‘Illness’ and ‘death of livestock’. Illness and other shocks may lead them to destitution; whereas illness and death of livestock hampers the buffering system in their coping strategies in difficult months as well as monetary losses. The shocks, apart from the three mentioned above, were ‘crop loss’ followed by ‘theft cases’. Beside illness and death and illness of the livestock, the shocks, which are very severe, are sudden death of the earning member, drought and flood followed by fire in house and sudden price fall of the profitable crops. But these shocks are not so frequent. Overall the human shocks are the more frequent and more severe, whereas material shocks are less frequent. Environmental shocks are severe in nature but its frequency is less. Economic shocks are moderate both in terms of frequency and severity. Livelihood related shocks are more frequent, but their severity is low to medium.

### Seasonality and vulnerability:

Vulnerability of poor people has a seasonal dimension. Poor people of this village have identified the difficult months in a year in respect of food and work availability. They have also mentioned their coping strategies during these periods. During mid-October to mid-February, the poor people became vulnerable as during these period they had least job opportunity with in the village; therefore, purchasing of food materials is also very much troublesome, as they were to depend upon their daily wage. During mid-November the poor people of the village went through a period of food insecurity and to get adequate amount of food they used to migrate to other places (for employment and food). It is evident that from mid of March to mid of May the poor people of this village have to undergo a very stressful and vulnerable phase.

### Coping strategies of the poor to different shocks:

The poor people have their own cropping strategies for absorbing the shocks, which they get from their experiences. Their coping strategies for absorbing the shocks are as follows:

- In maximum cases they have to take loan at a very high interest rate by mortgaging their land, house or ornaments.

- Sometime sell their land.
- Women moved against distillery situation in the village to prevent addiction to alcohol to the men.

#### **Coping strategies of the poor during the difficult months:**

The poor people have their own cropping strategies for any difficult situation, which they get from their day-to-day experience. Their coping strategies for difficult months are as follows:

- Women collect different type of sak (herbs) like kalmi, kachu etc. for eating.
- Borrow from the grocers for food material, and other daily required materials.
- Poultry bird is helpful during this period.
- Some are migrate to other places in search of job.
- Some time they have to take loans from the money lenders at a higher rate of interest.

**Table 3: Distribution of different asset variables and beneficiary status of different rural development programme**

Variable name	Chi-square	df	significance
Caste	6.160	4	0.187
Family type	0.005	1	0.943
Education	18.367**	6	0.005
Occupation	15.030**	5	0.010
Organization association	9.970*	4	0.041
Cultivation status	0.012	1	0.912
Rice	0.138	1	0.711
Mustard	0.005	1	0.944
Cropping sequence	0.876	1	0.349
Saving	0.158	1	0.691
Drinking water	0.560	1	0.454
Domestic water	0.158	1	0.691
Livestock type	4.274	3	0.233
Health status	0.920	1	0.337
SGH	2.079	1	0.149
Political association	0.949	1	0.330
Market access	4.746	2	0.093
Market nature	3.854	2	0.146

From the Table 3 it was observed the Chi-square value in case of education, occupation, and organization association. In as much as is less than Alfa = 0.05, in the case of education, occupation, organization association, the decision is to reject  $H_0$  in favour of  $H_1$ . We conclude that these three variables were significantly differing on the issue of beneficiary status. From the Table it is evident that the contribution of chi-square value has been high from these variables. This is perhaps due to fact that the person with higher educational qualification were getting the benefits, which was rare in case of very poor and poor people, from occupation front it was also evident that those who are already in a good occupation status were mainly get benefited from different development programme and there was an inequality in providing the development programmes as it can be seen that the people who have some organizational association were easily managed to list their name in different development programmes. So, as a matter of fact the beneficiary status was differing in these cases.

#### **Livelihood outcomes:**

Livelihood outcomes are the achievements or outputs of Livelihood Strategies. Once again, the important idea associated with the component is that outsiders investigate, observe and listen, rather than jumping to quick conclusions or making hasty judgments about the exact nature of the outcomes that people pursue. In particular, it is not wise to assume that people are entirely dedicated to maximizing their income. Rather, understanding the richness of potential livelihood goals should be recognized and sought for. This, in turn, will help to understand people's properties, why they do what they do, and where the major constraints lie. As the well off families is very small in number and are more prosperous than the other three categories they are excluded purposively by the researcher.

**Table 4: Ranks of different concepts of livelihood outcome as perceived by different category of people**

Concepts	Very poor family	Poor family	Moderately well-off family
More income generation	7	11	8
More no. of working days	4	2	10
Children's education	9	4	1
Employment of adult members in the household	1	3	6
Safe drinking water	8	8	3
Increase of daily wage of labours	5	10	12
Standard health centre	10	6	2
More amount of subsidies by the government	11	9	5
Good market infrastructure	12	12	7
Good road transport system	6	5	4
Food security for the family	2	1	9
Poor families should also get the opportunity to take part in decision making processes for the welfare of the village	3	7	11

The above Table – 4 reveals the ranking given by different well-being groups to the concepts of livelihood outcomes. The poor people of the village gave this ranking on the basis of their livelihood strategies; they have planned to achieve these outcomes. It is evident from the table that for the very poor families' foremost priority was the employment of adult members in the household followed by food security for the family; poor families should also get the opportunity to part in decision making processes for the welfare of the village; more number of working days, whereas, poor families express that food security for the family was most important followed by more number of working days; employment of adult members in the household; children's education but in the case of moderately well-off families priority was changed by children's education and followed by standard health centre; safe drinking water; good road transport system.

**Table 5: Rank correlation of different well being group in terms of expected outcomes**

			Very poor family	Poor family	Moderate family
Spearman's rho	Very poor family	Correlation Coefficient	1.000	0.608(*)	-0.545
	Poor family	Correlation Coefficient		1.000	0.098
	Moderate family	Correlation Coefficient			1.000

\*Correlation is significant at the 0.005 level (2-tailed).

From the Table 5 it can be observed that only the perception of the poor and very poor families in terms of their concepts used in describing desired livelihood outcomes are correlated (value =0.608). No significant associations were found in between Poor and moderately well-off, and very poor and moderately well-off. This shows that well-being groups belonging to pro-poor categories were homogenous in perceptions about their livelihood outcome. Differential perceptions regarding their desired livelihood outcomes were observed while comparing with moderately well-off category.

#### 4. FINDINGS

The possession of different assets variables were varying among the different well-being groups present in the village. Different well-being groups were identified among respondents on the basis of their perception about poverty. Categorically these groups were then divided into vary poor, poor, moderately well-off families. The assets variables of these groups had shown significant differences among the different well-being groups. All poor people are vulnerable. The poor people of the village under study had identified their vulnerability in terms of seasonality, shocks and their cropping strategies. They expressed their concerns about shocks and vulnerable situations in terms of availability of work, availability of food, seasonal migration, illness of the principle earner of the house hold, death of the house hold members. Mainly the very poor families were most vulnerable, as in a year they were employed only during the rice cultivation and in some field where mustard cultivation were carried out after this period they are seasonally jobless and had to *rom* to other places in search of jobs. As they are mainly field labourer other jobs of specific skills were not carried out by them and gone through a difficult period to get a good meal for him / her as well as for his / her family members. The money they earn from migrating to other places was almost expended during their journey most of the time. The existing structure and process had a strong bearing over the well-being position of the respondents. The house holds with deprived condition were being benefited by the most of the development programmes. But some evidence of misplaced benefits to the people who have sound political affiliation was also taken place. The perception of the poor and very poor

families in terms of their concepts used in describing desired livelihood outcomes were homogenous in nature. Differential perception regarding the desired livelihood outcomes was observed when comparing with moderately well-off categories.

## **5. CONCLUSION**

The finding of the study suggested that the poor people have their own concepts of poverty. In that village, limited livelihood opportunity is the primary cause for poverty as perceived by the poor people. Mainly economic causes are responsible for their poverty. It has also found that an economic effect of poverty leads to the formation of a poverty trap from which the poor people cannot escape. Mainly economic causes are responsible for their poverty. The understanding that has been emerged out from the study that there exist significance difference within the well being groups under poor households in respect of livelihood assets, vulnerability context, structure and process that governed them and finally in the perception of wellbeing. But interestingly enough the issue of generalizing all poverty classes at the time of intervening poverty with reduction strategies are one of the bottlenecks and internalized by the researchers. These variances should be reflected in the planning of pro-poor development strategies unless the efforts will be rather miss the target.

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